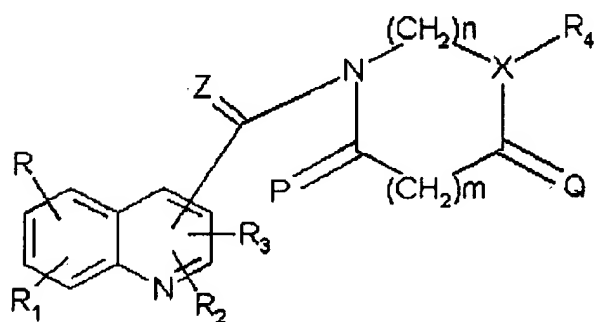


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This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (currently amended): Quinoline derivatives according to the formula 1



(1)

in which

R, R₁, R₂, R₃ can be attached to any of the quinoline carbon atoms C₂ to C₈, are identical or different and independently of one another denote hydrogen, straight-chain or branched C₁₋₈ alkyl, C₁₋₈ alkyl, C₃₋₇ cycloalkyl, straight-chain or branched C₁₋₈ alkylcarbonyl, straight-chain or branched C₁₋₈ alkoxy, halogen, aryl-C₁₋₈ alkoxy, nitro, amino, mono-C₁₋₄ alkylamino, di-C₁₋₄ alkylamino, C₁₋₈ alkoxycarbonylamino, C₁₋₆ alkoxycarbonylamino-C₁₋₈ alkyl, cyano, straight-chain or branched cyano-(C₁₋₆)-alkyl, carboxyl, C₁₋₈ alkoxycarbonyl, C₁₋₄ alkyl which is substituted by one or more fluorine atoms, carboxy-C₁₋₈ alkyl or C₁₋₈ alkoxycarbonyl-C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, straight-chain or branched cyano-C₁₋₆ alkyl, aryl, where the aryl radical can be unsubstituted or mono- or polysubstituted by identical or different substituents from the group consisting of halogen, straight-chain or branched C₁₋₈ alkyl, C₃₋₇ cycloalkyl.

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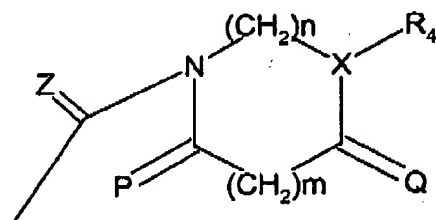
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carboxyl, straight-chain or branched C₁₋₈ alkoxy, by trifluoromethyl, hydroxyl, straight-chain or branched C₁₋₈ alkoxy, benzyloxy, nitro, amino, mono-C₁₋₄ alkylamino, di-C₁₋₄ alkylamino, cyano, straight-chain or branched cyano-C₁₋₆ alkyl, where R and R₁ or R₂ and R₃ can form a fused aromatic 6-membered ring with the quinoline ring forming an acridine ring which for its part can be substituted at any C atom ring position by the radicals R, R₁, R₂ and R₃ having the meanings mentioned above;

P and Q are each 2 hydrogen atoms;

Z is oxygen or sulfur, where the radical



substituted on the quinoline heterocycle can be attached to C atoms C₂₋₈ of the quinoline ring skeleton;

X is nitrogen or C-R₅, where R₅ is hydrogen or C₁₋₆ alkyl;
~~n, m independently of one another is an integer between 0 and 3, with the proviso that when n = 0, X is a CR₅R₆ group wherein R₅ and R₆ independently of one another represent hydrogen or C₁₋₆ alkyl, and that the nitrogen atom adjacent to the C=Z group is substituted by a hydrogen atom or a C₁₋₆ alkyl;~~

n is 1 or 2 and m is 0 or 1, with the proviso that the sum of n and m is 2;

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R_4 is a straight-chain or branched C_{1-20} alkyl radical which can be saturated or unsaturated, with one to three double and/or triple bonds, and which can be unsubstituted or can optionally be substituted at the same or different C atoms by one, two or more aryl, heteroaryl, halogen, cyano, C_{1-6} alkoxycarbonylamino, C_{1-6} alkoxy, amino, mono- C_{1-4} alkylamino or di- C_{1-4} alkylamino; a C_{6-14} aryl radical, ~~C_{6-14} aryl- C_{1-4} alkyl radical~~, or a C_{2-10} heteroaryl or C_{2-10} heteroaryl- C_{1-4} alkyl radical which contains one or more heteroatoms selected from the group consisting of N, O and S, where the C_{1-4} alkyl radical can be unsubstituted or mono- or polysubstituted by identical or different substituents from the group consisting of C_{1-6} alkyl, halogen or oxo (=O) and where the C_{6-14} aryl or C_{2-10} heteroaryl radical can be unsubstituted or mono- or polysubstituted by identical or different substituents from the group consisting of straight-chain or branched C_{1-8} alkyl, C_{3-7} cycloalkyl, halogen, cyano, C_{1-6} alkoxycarbonylamino, C_{1-6} alkoxy, carboxyl, C_{1-8} alkoxycarbonyl, straight-chain or branched C_{1-6} alkyl which is substituted by one or more fluorine atoms, hydroxyl, straight-chain or branched C_{1-8} alkoxy, where adjacent oxygen atoms can also be linked by C_{1-2} alkylene groups, benzyloxy, nitro, amino, mono- C_{1-4} alkylamino, di- C_{1-4} alkylamino, aryl, which can be unsubstituted or mono- or polysubstituted by identical or different substituents from the group consisting of straight-chain or branched C_{1-8} alkyl, C_{3-7} cycloalkyl, carboxyl, straight-chain or branched C_{1-8} alkoxycarbonyl, trifluoromethyl, hydroxyl, straight-chain or branched C_{1-8} alkoxy, benzyloxy, nitro, amino, mono- C_{1-4} alkylamino, di- C_{1-4} alkylamino, cyano, straight-chain or branched cyano- C_{1-6} alkyl;

and their structural isomers and stereoisomers and their pharmaceutically acceptable salts.

Claim 2 (currently amended): The quinoline derivative of ~~claim 1~~ claims 1 or 15, wherein in ~~R , R_1 , R_2 , and R_3~~ R , R_1 , R_2 and R_3 , said C_{1-8} alkylcarbonyl is acetyl, said C_{1-8} alkoxy is benzyloxy or phenylethoxy, said fluorine atoms are trifluoromethyl, said C_{2-6} alkenyl is allyl, said C_{2-6} alkynyl is ethynyl or propargyl, said cyano- C_{1-6} alkyl is cyanomethyl, said C_{1-8} alkoxy- carbonyl is tert-butoxycarbonyl, and said C_{1-8} alkoxy is methoxy or ethoxy,

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and in R₄ said fluorine atoms are trifluoromethyl, said C₁₋₃ alkoxy is methoxy or ethoxy, and said C₁₋₂ alkylene group is a methylene group.

Claim 3 (currently amended): The quinoline derivative of formula 1 of claim 1, wherein R, R₁, R₂, R₃, X, Z, P, Q, n and m have the meanings given in claim 1;

R₄ is a straight-chain or branched C₁₋₂₀ alkyl radical which can be saturated or unsaturated, with one to three double and/or triple bonds, and which can be unsubstituted or optionally substituted on the same or different C atoms by one, two or more aryl, heteroaryl, halogen, C₁₋₆ alkoxy, amino, mono- C₁₋₄ alkylamino or di-C₁₋₄ alkylamino;

a phenyl ring or a naphthyl ring, each of which can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of straight-chain or branched C₁₋₈ alkyl, C₃₋₇ cycloalkyl, halogen, cyano, C₁₋₆ alkoxy-carbonylamino, C₁₋₆ alkoxy, carboxyl, C₁₋₆ alkoxy-carbonyl, straight-chain or branched C₁₋₆ alkyl which is substituted by one or more fluorine atoms, hydroxyl, straight-chain or branched C₁₋₆ alkoxy, benzyloxy, nitro, amino, mono-C₁₋₄ alkylamino, di-C₁₋₄ alkylamino, aryl, which can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of straight-chain or branched C₁₋₈ alkyl, C₃₋₇ cycloalkyl, carboxyl, straight-chain or branched C₁₋₈ alkoxy-carbonyl, by trifluoromethyl, hydroxyl, straight-chain or branched C₁₋₈ alkoxy, benzyloxy, nitro, amino, mono-C₁₋₄ alkylamino, di-C₁₋₄ alkylamino, cyano, straight-chain or branched cyano-C₁₋₆ alkyl;

~~a 2, 4, 5 or 6 pyrimidinyl radical, or a 2, 4, 5 or 6 pyrimidinyl C₁₋₄ alkyl radical, wherein the C₁₋₄ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O) and the 2, 4, 5 or 6 pyrimidinyl radical can be unsubstituted or mono- or up to trisubstituted by the same or different substituents from the group of hydrogen, or Y~~

~~wherein Y is a C₁₋₆ alkyl, halogen, nitro, amino, mono-C₁₋₆ alkylamino, di-C₁₋₆ alkylamino, hydroxyl, C₁₋₆ alkoxy, benzyloxy, carboxyl, C₁₋₆ alkoxy-carbonyl, C₁₋₆~~

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~~alkoxy-carbonylamino or C₁₋₆ alkyl which is mono- or polysubstituted by fluorine, C₆₋₁₀ aryl and C₆₋₁₀ aryl-C₁₋₆ alkyl;~~

~~a 3, 4, 5- or 6- pyridazinyl radical, or a 3, 4, 5- or 6- pyridazinyl-C₁₋₄ alkyl radical, wherein the C₁₋₄ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 3, 4, 5- or 6- pyridazinyl radical can be unsubstituted or mono- or up to trisubstituted by the same or different substituents from the group of hydrogen, or Y;~~

~~a 2, 3, 5- or 6- pyrazinyl radical, or a 2, 3, 5- or 6- pyrazinyl-C₁₋₄ alkyl radical, wherein the C₁₋₄ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 2, 3, 5- or 6- pyrazinyl radical can be unsubstituted or mono- or up to trisubstituted by the same or different substituents from the group of hydrogen, or Y; a 3, 4, 5, 6, 7, or 8- cinnolinyl radical, or a 3, 4, 5, 6, 7, or 8- cinnolinyl-C₁₋₄ alkyl radical, wherein the C₁₋₄ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 3, 4, 5, 6, 7, or 8- cinnolinyl radical can be unsubstituted or mono- or up to pentasubstituted by the same or different substituents from the group of hydrogen, or Y;~~

~~a 2, 4, 5, 6, 7, or 8- quinazolinyl radical, or a 2, 4, 5, 6, 7 or 8- quinazolinyl-C₁₋₄ alkyl radical, wherein the C₁₋₄ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of hydrogen, C₁₋₆ alkyl, halogen or oxo (=O), and the 2, 4, 5, 6, 7, or 8- quinazolinyl radical can be unsubstituted or mono- or up to pentasubstituted by the same or different substituents from the group of hydrogen, or Y;~~

~~a 2, 3, 5, 6, 7, or 8- quinoxaliny radical, or a 2, 3, 5, 6, 7, or 8- quinoxaliny-C₁₋₄ alkyl radical, wherein the C₁₋₄ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 2, 3, 5, 6, 7, or 8- quinoxaliny radical can be unsubstituted or~~

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~~mono- or up to pentasubstituted by the same or different substituents from the group of hydrogen, or Y;~~

~~a 1, 4, 5, 6, 7, or 8-phthalazinyl radical, or a 1, 4, 5, 6, 7, or 8-phthalazinyl C₁₋₄ alkyl radical, wherein the C₁₋₄ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 1, 4, 5, 6, 7, or 8-phthalazinyl radical can be unsubstituted or mono- or up to pentasubstituted by the same or different substituents from the group of hydrogen, or Y;~~

~~a 2, 3, 4, 5, 6, 7 or 8-quinolyl radical, or a 2, 3, 4, 5, 6, 7 or 8-quinolyl C₁₋₄ alkyl radical, wherein the C₁₋₄ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 2, 3, 4, 5, 6, 7 or 8-quinolyl radical can be unsubstituted or mono- or up to hexasubstituted by the same or different substituents from the group of hydrogen, or Y;~~

~~a 1, 3, 4, 5, 6, 7 or 8-isoquinolyl radical, or a 1, 3, 4, 5, 6, 7 or 8-isoquinolyl C₁₋₄ alkyl radical, wherein the C₁₋₄ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 1, 4, 5, 6, 7 or 8-isoquinolyl radical can be unsubstituted or mono- or up to hexasubstituted by the same or different substituents from the group of hydrogen, or Y;~~

~~a 2, 6, 8 or 9 [9H] purinyl radical, or a 2, 6, 8 or 9 [9H] purinyl C₁₋₄ alkyl radical, wherein the C₁₋₄ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 2, 6, 8 or 9 [9H] purinyl radical can be unsubstituted or mono- to trisubstituted by the same or different substituents from the group of hydrogen, or Y;~~

~~a 2, 6, 7 or 8 [7H] purinyl radical, or a 2, 6, 7 or 8 [7H] purinyl C₁₋₄ alkyl radical, wherein the C₁₋₄ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the~~

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~~2, 6, 7 or 8 [7H] purinyl radical can be unsubstituted or mono- or up to trisubstituted by the same or different substituents from the group of hydrogen, or Y;~~

~~a 1, 2, 3, 4, 5, 6, 7, 8 or 9 acridinyl radical, or a 1, 2, 3, 4, 5, 6, 7, 8 or 9 acridinyl C₁₋₆ alkyl radical, where the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 1, 2, 3, 4, 5, 6, 7, 8 or 9 acridinyl radical can be unsubstituted or mono- to octasubstituted by the same or different substituents from the group of hydrogen, or Y;~~

~~a 1, 2, 3, 4, 5, 6, 7, 8 or 9 phenanthridinyl radical, or a 1, 2, 3, 4, 5, 6, 7, 8 or 9 phenanthridinyl C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of hydrogen, C₁₋₆ alkyl, halogen or oxo (=O), and the 1, 2, 3, 4, 5, 6, 7, 8 or 9 phenanthridinyl radical can be unsubstituted or mono- or up to octasubstituted by the same or different substituents of Y;~~

~~a 2, 3, 4, 5 or 6 pyridyl radical where the 2, 3, 4, 5 or 6 pyridyl radical can be unsubstituted or mono- or up to tetrasubstituted by the same or different substituents from the group of hydrogen, or Y;~~

~~a 2, 3, 4, 5 or 6 pyridinyl C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 2, 3, 4, 5 or 6 pyridinyl radical can be unsubstituted or mono- or up to tetrasubstituted by the same or different substituents from the group of hydrogen, or Y;~~

~~a 2, 3, 4 or 5 thienyl radical, or a 2, 3, 4 or 5 thienyl C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 2, 3, 4 or 5 thienyl radical can be unsubstituted or mono- or up to trisubstituted by the same or different substituents from the group of hydrogen, or Y;~~

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~~a 2, 4, or 5 thiazolyl radical, or a 2, 4, or 5 thiazolyl C₁₋₆ alkyl C₁₋₆ alkyl radical,~~
~~wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the~~
~~same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the~~
~~2, 4, or 5 thiazolyl radical can be unsubstituted or mono- or disubstituted by the same or~~
~~different substituents from the group of hydrogen, or Y;~~

~~a 3, 4, or 5 isothiazolyl radical, or a 3, 4, or 5 isothiazolyl C₁₋₆ alkyl radical, wherein~~
~~the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or~~
~~different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 3, 4, or~~
~~5 isothiazolyl radical can be unsubstituted or mono- or disubstituted by the same or~~
~~different substituents from the group of hydrogen, or Y;~~

~~a 2, 4, 5, 6, or 7 benzothiazolyl radical, or a 2, 4, 5, 6, or 7 benzothiazolyl C₁₋₆~~
~~alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or~~
~~polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen~~
~~or oxo (=O), and the 2, 4, 5, 6, or 7 benzothiazolyl radical can be unsubstituted or~~
~~mono- or up to tetrasubstituted by the same or different substituents from the group of~~
~~hydrogen, or Y;~~

~~a 1, 2, 4, or 5 imidazolyl radical, or a 1, 2, 4, or 5 imidazolyl C₁₋₆ alkyl radical,~~
~~wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the~~
~~same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the~~
~~1, 2, 4, or 5 imidazolyl radical can be unsubstituted or mono- or up to trisubstituted by~~
~~the same or different substituents from the group of hydrogen, or Y;~~

~~a 1, 3, 4, or 5 pyrazolyl radical, or a 1, 3, 4 or 5 pyrazolyl C₁₋₆ alkyl radical, wherein~~
~~the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or~~
~~different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 1, 3, 4-~~
~~or 5 pyrazolyl radical can be unsubstituted or mono- or up to trisubstituted by the same of~~
~~different substituents from the group of hydrogen, or Y;~~

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~~a 1, 2, 3, 4, or 5 pyrrolyl radical, or a 1, 2, 3, 4, or 5 pyrrolyl C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 1, 2, 3, 4 or 5 pyrrolyl radical can be unsubstituted or mono- or up to tetrasubstituted by the same or different substituents from the group of hydrogen, or Y;~~

~~a 1, 3, or 5 [1.2.4] triazolyl radical, or a 1, 3, or 5 [1.2.4] triazolyl C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of hydrogen, C₁₋₆ alkyl, halogen or oxo (=O), and the 1, 3, or 5 [1.2.4] triazolyl radical can be unsubstituted or mono- or disubstituted by the same or different substituents from Y;~~

~~a 1, 4, or 5 [1.2.3] triazolyl radical, or a 1, 4, or 5 [1.2.3] triazolyl C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 1, 4, or 5 [1.2.3] triazolyl radical can be unsubstituted or mono- or disubstituted by the same or different substituents from the group of hydrogen, or Y;~~

~~a 1- or 5-[1H] tetrazolyl radical, or a 1, or 5-[1H] tetrazolyl C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 1, or 5-[1H] tetrazolyl radical can be unsubstituted or substituted by hydrogen, or Y;~~

~~a 2- or 5-[2H] tetrazolyl radical, or a 2- or 5-[2H] tetrazolyl C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 2- or 5-[2H] tetrazolyl radical can be unsubstituted or substituted by hydrogen, or Y;~~

~~a 2, 4, or 6 [1.3.5] triazinyl radical, or a 2, 4, or 6 [1.3.5] triazinyl C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of hydrogen, C₁₋₆ alkyl, halogen or oxo~~

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~~(=O), and the 2, 4, or 6 [1,3,5] triazinyl radical can be unsubstituted or mono- or disubstituted by the same or different substituents from the group of hydrogen, or Y;~~

~~a 2, 4, or 5 oxazolyl radical, or a 2, 4, or 5 oxazolyl C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 2, 4, or 5 oxazolyl radical can be unsubstituted or mono- or disubstituted by the same or different substituents from the group of hydrogen, or Y;~~

~~a 3, 4, or 5 isoxazolyl radical, or a 3, 4, or 5 isoxazolyl C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 3, 4, or 5 isoxazolyl radical can be unsubstituted or mono- or disubstituted by the same or different substituents from the group of hydrogen, or Y;~~

~~a 1, 2, 3, 4, 5, 6 or 7 indolyl radical, or a 1, 2, 3, 4, 5, 6 or 7 indolyl C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 1, 2, 3, 4, 5, 6 or 7 indolyl radical can be unsubstituted or mono- or up to hexasubstituted by the same or different substituents from the group of hydrogen, or Y.~~

Claim 4 (currently amended): The quinoline derivative of ~~claim 3~~ claims 3 or 16, wherein in R₄ said fluorine atoms are trifluoromethyl, and said C₁₋₈ alkoxy is methoxy or ethoxy.

Claim 5 (original): The quinoline derivative of claim 1, wherein R, R₁, R₂, R₃, X, Z, P, Q, n and m have the meanings given above, and R₄ is phenyl which is unsubstituted or substituted by one to five the same or different C₁₋₆ alkoxy groups, where adjacent oxygen atoms can also be linked by C₁₋₂ alkylene groups.

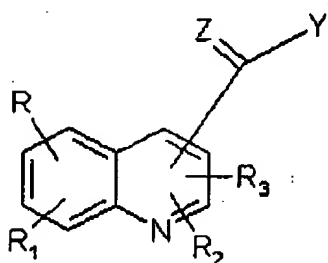
Claim 6 (original): The quinoline derivative of claim 1, wherein R, R₁, R₂, R₃, X, Z, P, Q, n and m have the meanings given above and R₄ is 3,5-dimethoxyphenyl.

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Claim 7 (currently amended): The quinoline derivative of ~~claim 1~~ claims 1 or 15, wherein R_4 has the meanings given above, R , R_1 , R_2 , R_3 each is hydrogen, Z is an oxygen atom, X is a nitrogen atom, P and Q are each two hydrogen atoms as in $-(CH_2)CH_2-$, m is zero, and n is 2.

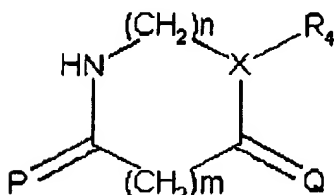
Claim 8 (currently amended): The quinoline derivative of claim 1, wherein R , R_1 , R_2 , R_3 are each a hydrogen atom, Z is an oxygen atom, X is a nitrogen atom, P and Q each are two hydrogen atoms as in $-(CH_2)CH_2-$, m is zero, n is 2, and $[R_4]R_4$ is a 3,5-dimethoxyphenyl radical.

Claim 9 (currently amended): A process for preparing the quinoline derivative of ~~claim 1~~ claims 1 or 15, which comprises reacting a quinoline carboxylic acid of formula (2)



(2)

in which R , R_1 , R_2 , R_3 have the meanings given above, Z is an oxygen or sulfur atom, and Y is a leaving group with an amine of formula (3)



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(3)

in which R₄, X, P, Q, m and n have the meanings given above, optionally in the presence of diluents and auxiliaries.

Claim 10 (Cancelled)

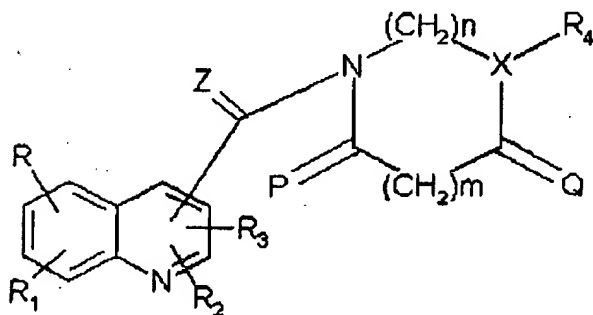
Claim 11 (Cancelled)

Claim 12 (Cancelled)

Claim 13 (currently amended): A medicament which comprises as active ingredient at least one quinoline derivative according of ~~claim 1~~claims 1 or 15, together with conventional pharmaceutically acceptable auxiliaries, additives and carriers.

Claim 14 (currently amended): The pharmaceutically acceptable acid addition salt of the quinoline derivative of ~~claim 1~~claims 1 or 15, when formed with one of the acids hydrochloric acid, hydrobromic acid, sulfuric acid, phosphoric acid, fumaric acid, succinic acid, lactic acid, citric acid, acetic acid, tartaric acid, malic acid, maleic acid, embonic acid, malonic acid, trifluoroacetic acid, metanesulfonic acid, and sulfoacetic acid.

Claim 15 (new): Quinoline derivatives according to the formula 1



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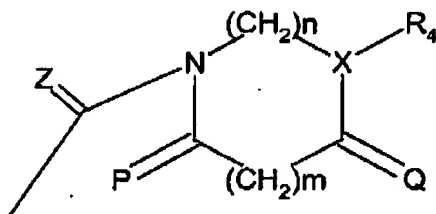
(1)

in which

R, R₁, R₂, R₃ can be attached to any of the quinoline carbon atoms C₂ to C₈, are identical or different and independently of one another denote hydrogen, straight-chain or branched C₁₋₈ alkyl, C₃₋₇ cycloalkyl, straight-chain or branched C₁₋₈ alkylcarbonyl, straight-chain or branched C₁₋₈ alkoxy, halogen, aryl-C₁₋₈ alkoxy, nitro, amino, mono-C₁₋₄ alkylamino, di-C₁₋₄ alkylamino, C₁₋₈ alkoxycarbonylamino, C₁₋₆ alkoxycarbonylamino-C₁₋₈ alkyl, cyano, straight-chain or branched cyano-(C₁₋₆)-alkyl, carboxyl, C₁₋₈ alkoxycarbonyl, C₁₋₄ alkyl which is substituted by one or more fluorine atoms, carboxy-C₁₋₈ alkyl or C₁₋₈ alkoxycarbonyl-C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, straight-chain or branched cyano-C₁₋₆ alkyl, aryl, where the aryl radical can be unsubstituted or mono- or polysubstituted by identical or different substituents from the group consisting of halogen, straight-chain or branched C₁₋₈ alkyl, C₃₋₇ cycloalkyl, carboxyl, straight-chain or branched C₁₋₈ alkoxycarbonyl, by trifluoromethyl, hydroxyl, straight-chain or branched C₁₋₈ alkoxy, benzyloxy, nitro, amino, mono-C₁₋₄ alkylamino, di-C₁₋₄ alkylamino, cyano, straight-chain or branched cyano-C₁₋₆ alkyl, where R and R₁ or R₂ and R₃ can form a fused aromatic 6-membered ring with the quinoline ring forming an acridine ring which for its part can be substituted at any C atom ring position by the radicals R, R₁, R₂ and R₃ having the meanings mentioned above;

P and Q are each 2 hydrogen atoms;

Z is oxygen or sulfur, where the radical



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substituted on the quinoline heterocycle can be attached to C atoms C₂₋₈ of the quinoline ring skeleton;

X is nitrogen;

n is 1 or 2 and m is 0 or 1, with the proviso that the sum of n and m is 2;

R₄ is C₆₋₁₄ aryl-C₁₋₄ alkyl radical where the C₁₋₄ alkyl radical can be unsubstituted or mono- or polysubstituted by identical or different substituents from the group consisting of C₁₋₆ alkyl, halogen or oxo (=O) and where the C₆₋₁₄ aryl or C₂₋₁₀ heteroaryl radical can be unsubstituted or mono- or polysubstituted by identical or different substituents from the group consisting of straight-chain or branched C₁₋₈ alkyl, C₃₋₇ cycloalkyl, halogen, cyano, C₁₋₆ alkoxycarbonylamino, carboxyl, C₁₋₈ alkoxycarbonyl, straight-chain or branched C₁₋₆ alkyl which is substituted by one or more fluorine atoms, hydroxyl, straight-chain or branched C₁₋₈ alkoxy, where adjacent oxygen atoms can also be linked by C₁₋₂ alkylene groups, benzyloxy, nitro, amino, mono-C₁₋₄ alkylamino, di-C₁₋₄ alkylamino, aryl, which can be unsubstituted or mono- or polysubstituted by identical or different substituents from the group consisting of straight-chain or branched C₁₋₈ alkyl, C₃₋₇ cycloalkyl, carboxyl, straight-chain or branched C₁₋₈ alkoxycarbonyl, trifluoromethyl, hydroxyl, straight-chain or branched C₁₋₈ alkoxy, benzyloxy, nitro, amino, mono-C₁₋₄ alkylamino, di-C₁₋₄ alkylamino, cyano, straight-chain or branched cyano-C₁₋₆ alkyl;

and their structural isomers and stereoisomers and their pharmaceutically acceptable salts.

Claim 16 (new): The quinoline derivative of formula 1 of claim 15, wherein R, R₁, R₂, R₃, X, Z, P, Q, n and m have the meanings given in claim 15;

R₄ is

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a 2-, 4-, 5- or 6-pyrimidinyl radical, or a 2-, 4-, 5- or 6-pyrimidinyl- C_{1-4} alkyl radical, wherein the C_{1-4} alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C_{1-6} alkyl, halogen or oxo (=O) and the 2-, 4-, 5- or 6-pyrimidinyl radical can be unsubstituted or mono- or up to trisubstituted by the same or different substituents from the group of hydrogen, or Y

wherein Y is a C_{1-6} alkyl, halogen, nitro, amino, mono- C_{1-6} alkylamino, di- C_{1-6} alkylamino, hydroxyl, C_{1-6} alkoxy, benzyloxy, carboxyl, C_{1-6} alkoxycarbonyl, C_{1-6} alkoxycarbonylamino or C_{1-6} alkyl which is mono- or polysubstituted by fluorine, C_{6-10} aryl and C_{6-10} aryl- C_{1-6} alkyl;

a 3-, 4-, 5- or 6-pyridazinyl radical, or a 3-, 4-, 5- or 6-pyridazinyl- C_{1-4} alkyl radical, wherein the C_{1-4} alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C_{1-6} alkyl, halogen or oxo (=O), and the 3-, 4-, 5- or 6-pyridazinyl radical can be unsubstituted or mono- or up to trisubstituted by the same or different substituents from the group of hydrogen, or Y;

a 2-, 3-, 5- or 6-pyrazinyl radical, or a 2-, 3-, 5- or 6-pyrazinyl- C_{1-4} alkyl radical, wherein the C_{1-4} alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C_{1-6} alkyl, halogen or oxo (=O), and the 2-, 3-, 5- or 6-pyrazinyl radical can be unsubstituted or mono- or up to trisubstituted by the same or different substituents from the group of hydrogen, or Y; a 3-, 4-, 5-, 6-, 7-, or 8-cinnolinyl radical, or a 3-, 4-, 5-, 6-, 7-, or 8-cinnolinyl- C_{1-4} alkyl radical, wherein the C_{1-4} alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C_{1-4} alkyl, halogen or oxo (=O), and the 3-, 4-, 5-, 6-, 7-, or 8-cinnolinyl radical can be unsubstituted or mono- or up to pentasubstituted by the same or different substituents from the group of hydrogen, or Y;

a 2-, 4-, 5-, 6-, 7-, or 8-quinazolinyl radical, or a 2-, 4-, 5-, 6-, 7 or 8-quinazolinyl- C_{1-4} alkyl radical, wherein the C_{1-4} alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of hydrogen, C_{1-6}

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alkyl, halogen or oxo (=O), and the 2-, 4-, 5-, 6-, 7-, or 8-quinazolinyl radical can be unsubstituted or mono- or up to pentasubstituted by the same or different substituents from the group of hydrogen, or Y;

a 2-, 3-, 5-, 6-, 7-, or 8-quinoxaliny radical, or a 2-, 3-, 5-, 6-, 7-, or 8-quinoxaliny-C₁₋₄ alkyl radical, wherein the C₁₋₄ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 2-, 3-, 5-, 6-, 7-, or 8-quinoxaliny radical can be unsubstituted or mono- or up to pentasubstituted by the same or different substituents from the group of hydrogen, or Y;

a 1-, 4-, 5-, 6-, 7-, or 8-phthalaziny radical, or a 1-, 4-, 5-, 6-, 7-, or 8-phthalaziny-C₁₋₄ alkyl radical, wherein the C₁₋₄ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 1-, 4-, 5-, 6-, 7-, or 8-phthalaziny radical can be unsubstituted or mono- or up to pentasubstituted by the same or different substituents from the group of hydrogen, or Y;

a 2-, 3-, 4-, 5-, 6-, 7- or 8-quinolyl radical, or a 2-, 3-, 4-, 5-, 6-, 7 or 8-quinolyl-C₁₋₄ alkyl radical, wherein the C₁₋₄ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 2-, 3-, 4-, 5-, 6-, 7- or 8-quinolyl radical can be unsubstituted or mono- or up to hexasubstituted by the same or different substituents from the group of hydrogen, or Y;

a 1-, 3-, 4-, 5-, 6-, 7- or 8-isoquinolyl radical, or a 1-, 3-, 4-, 5-, 6-, 7- or 8-isoquinolyl-C₁₋₄ alkyl radical, wherein the C₁₋₄ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 1-, 4-, 5-, 6-, 7- or 8-isoquinolyl radical can be unsubstituted or mono- or up to hexasubstituted by the same or different substituents from the group of hydrogen, or Y;

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a 2-, 6-, 8- or 9-[9H]-purinyl radical, or a 2-, 6-, 8- or 9-[9H]-purinyl-C₁₋₄ alkyl radical, wherein the C₁₋₄ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 2-, 6-, 8- or 9-[9H]-purinyl radical can be unsubstituted or mono- to trisubstituted by the same or different substituents from the group of hydrogen, or Y;

a 2-, 6-, 7- or 8-[7H]-purinyl radical, or a 2-, 6-, 7- or 8-[7H]-purinyl-C₁₋₄ alkyl radical, wherein the C₁₋₄ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 2-, 6-, 7- or 8-[7H]-purinyl radical can be unsubstituted or mono- or up to trisubstituted by the same or different substituents from the group of hydrogen, or Y;

a 1-, 2-, 3-, 4-, 5-, 6-, 7-, 8- or 9-acridinyl radical, or a 1-, 2-, 3-, 4-, 5-, 6-, 7-, 8- or 9-acridinyl-C₁₋₄ alkyl radical, where the C₁₋₄ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 1-, 2-, 3-, 4-, 5-, 6-, 7-, 8- or 9-acridinyl radical can be unsubstituted or mono- to octasubstituted by the same or different substituents from the group of hydrogen, or Y;

a 1-, 2-, 3-, 4-, 5-, 6-, 7-, 8- or 9-phenanthridinyl radical, or a 1-, 2-, 3-, 4-, 5-, 6-, 7-, 8- or 9-phenanthridinyl-C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of hydrogen, C₁₋₆ alkyl, halogen or oxo (=O), and the 1-, 2-, 3-, 4-, 5-, 6-, 7-, 8- or 9-phenanthridinyl radical can be unsubstituted or mono- or up to octasubstituted by the same or different substituents of Y;

a 2-, 3-, 4-, 5- or 6-pyridyl radical where the 2-, 3-, 4-, 5- or 6pyridyl radical can be unsubstituted or mono- or up to tetrasubstituted by the same or different substituents from the group of hydrogen, or Y;

a 2-, 3-, 4-, 5- or 6-pyridinyl-C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the

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group of C₁₋₆ alkyl, halogen or oxo (=O), and the 2-, 3-, 4-, 5- or 6-pyridinyl radical can be unsubstituted or mono- or up to tetrasubstituted by the same or different substituents from the group of hydrogen, or Y;

a 2-, 3-, 4- or 5-thienyl radical, or a 2-, 3-, 4- or 5-thienyl-C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 2-, 3-, 4- or 5-thienyl radical can be unsubstituted or mono- or up to trisubstituted by the same or different substituents from the group of hydrogen, or Y;

a 2-, 4-, or 5-thiazolyl radical, or a 2-, 4-, or 5-thiazolyl-C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 2-, 4-, or 5-thiazolyl radical can be unsubstituted or mono- or disubstituted by the same or different substituents from the group of hydrogen, or Y;

a 3-, 4-, or 5-isothiazolyl radical, or a 3-, 4-, or 5-isothiazolyl-C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 3-, 4-, or 5-isothiazolyl radical can be unsubstituted or mono- or disubstituted by the same or different substituents from the group of hydrogen, or Y;

a 2-, 4-, 5-, 6-, or 7-benzothiazolyl radical, or a 2-, 4-, 5-, 6-, or 7-benzothiazolyl-C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 2-, 4-, 5-, 6-, or 7-benzothiazolyl radical can be unsubstituted or mono- or up to tetrasubstituted by the same or different substituents from the group of hydrogen, or Y;

a 1-, 2-, 4-, or 5-imidazolyl radical, or a 1-, 2-, 4-, or 5-imidazolyl-C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the

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1-, 2-, 4-, or 5-imidazolyl radical can be unsubstituted or mono- or up to trisubstituted by the same or different substituents from the group of hydrogen, or Y;

a 1-, 3-, 4-, or 5-pyrazolyl radical, or a 1-, 3-, 4- or 5-pyrazolyl-C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 1-, 3-, 4- or 5-pyrazolyl radical can be unsubstituted or mono- or up to trisubstituted by the same of different substituents from the group of hydrogen, or Y;

a 1-, 2-, 3-, 4-, or 5-pyrrolyl radical, or a 1-, 2-, 3-, 4-, or 5-pyrrolyl-C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 1-, 2-, 3-, 4- or 5-pyrrolyl radical can be unsubstituted or mono- or up to tetrasubstituted by the same or different substituents from the group of hydrogen, or Y;

a 1-, 3-, or 5-[1.2.4]-triazolyl radical, or a 1-, 3-, or 5-[1.2.4]-triazolyl-C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of hydrogen, C₁₋₆ alkyl, halogen or oxo (=O), and the 1-, 3-, or 5-[1.2.4]-triazolyl radical can be unsubstituted or mono- or disubstituted by the same or different substituents from Y;

a 1-, 4-, or 5-[1.2.3]-triazolyl radical, or a 1-, 4-, or 5-[1.2.3]-triazolyl-C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 1-, 4-, or 5-[1.2.3]-triazolyl radical can be unsubstituted or mono- or disubstituted by the same or different substituents from the group of hydrogen, or Y;

a 1- or 5-[1H]-tetrazolyl radical, or a 1-, or 5-[1H]-tetrazolyl-C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 1-, or 5-[1H]-tetrazolyl radical can be unsubstituted or substituted by hydrogen, or Y;

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a 2- or 5-[2H]-tetrazoyl radical, or a 2- or 5-[2H]-tetrazoyl-C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 2- or 5-[2H]-tetrazoyl radical can be unsubstituted or substituted by hydrogen, or Y;

a 2-, 4-, or 6-[1.3.5]-triazinyl radical, or a 2-, 4-, or 6-[1.3.5]-triazinyl-C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of hydrogen, C₁₋₆ alkyl, halogen or oxo (=O), and the 2-, 4-, or 6-[1.3.5]-triazinyl radical can be unsubstituted or mono- or disubstituted by the same or different substituents from the group of hydrogen, or Y;

a 2-, 4-, or 5-oxazolyl radical, or a 2-, 4-, or 5-oxazolyl-C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 2-, 4-, or 5-oxazolyl radical can be unsubstituted or mono- or disubstituted by the same or different substituents from the group of hydrogen, or Y;

a 3-, 4-, or 5-isoxazolyl radical, or a 3-, 4-, or 5-isoxazolyl-C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 3-, 4-, or 5-isoxazolyl radical can be unsubstituted or mono- or disubstituted by the same or different substituents from the group of hydrogen, or Y;

a 1-, 2-, 3-, 4-, 5-, 6- or 7-indolyl radical, or a 1-, 2-, 3-, 4-, 5-, 6 or 7-indolyl-C₁₋₆ alkyl radical, wherein the C₁₋₆ alkyl radical can be unsubstituted or mono- or polysubstituted by the same or different substituents from the group of C₁₋₆ alkyl, halogen or oxo (=O), and the 1-, 2-, 3-, 4-, 5-, 6- or 7-indolyl radical can be unsubstituted or mono- or up to hexasubstituted by the same or different substituents from the group of hydrogen, or Y.